

DX News

•Serving DX'ers since 1933•

Volume 60, No. 4 - Nov. 2, 1992 (ISSN 0737-1659)



Inside...

- 2 .. **AM Switch**
- 3 .. **DDXD-N**
- 4 .. **In the Beginning**
- 5 .. **IDXD**
- 8 .. **Drake R8**

- 14 .. **R8 Attenuator**
- 15 .. **Building the BCB**
- 21 .. **Telecom Order**
CKON
Homestead Radio
- 23 .. **NRC Products**

CPC Test Calendar				
Call	Freq	Date	EST Time	
WRIV	1390	Nov. 2, 1992	0530-0600	
KBOA	830	Nov. 5, 1992	0100-0200	
WWLS	640	Nov. 7, 1992	0100-0130	
KMFI	1470	Nov. 9, 1992	0200-0500	
KNAK	540	Nov. 23, 1992	0200-0230	
WSMI	1540	Nov. 28, 1992	0030-0100	
WIMA	1150	Nov. 28, 1992	0030-0100	
KCNO	570	Nov. 30, 1992	0330-0400	

No new tests were scheduled this week.

From the Publisher ... Okay, guys, it's time to dust off the receivers and tighten up the wires in your loops ... and send your loggings to the appropriate editors. If I can tape four newbies whilst slapping together this issue, you can do the same!

Clippings ... We're always happy to receive clippings, the information from which eventually gets into print. Remember that station status changes always should go to Jerry Starr and format changes should go to Tony Fitzherbert for their columns, and eventually to the NRC AM Logbook for updating. Other clippings we either use as-is in DXN or forward to the appropriate editors.

Clippings should be complete and should include the name of the publication. I've had to throw away a number of newspaper clippings which did not include materials on a jump page inside the paper, or which chopped off part of the side of the text. Also, write only on the margin, never on the back. Unless you have a pressing reason for keeping the original, don't photocopy clippings, as many copiers streak, print too grey, and even reduce the size of the print to illegibility when later reprinted at 59% in DXN. Include the name of the newspaper, and your name so that we can give credit. I cannot use clippings which do not include the newspaper's name; I need to give credit to the source. Note that we no longer use cartoons, all of which are copyrighted; most newspaper text is not copyrighted, except by the originator or press service, which will be noted at the head of the article. I'm still looking for good cartoon ideas, by the way; I have at least one

talented young artist available who draws on a professional level.

DXChange... Bill Swiger - RR1, Box 142A - Bridgeport, WV 26330-9368 is looking for copies or originals of the following manuals: AM Tuner BC1A, FM Tuner FM3A, Line Voltage Monitor IM103, Audio Amp AA18, SWR/Power Meter HM 2102, Signal Generator G5, Indoor/Outdoor Temperature Gauge ID 1390, VTM V4A, and Condensor Checker C2.

They Joined ... Mike Sanburn, Bellflower, CA; Lary Faris, Lakeside, OH; Lonnie R. Nine (rejoins), Monett, MO.

Starts 53rd year ... Finally, this note from Len Kruse, Dubuque, IA: "The enclosed membership to the National Radio Club begins my 52nd year of continuous membership with the NRC. It was back in 1940 when I joined for the first time, and I have been a member ever since. During World War II the NRC did supply the bulletin for my three years in the Army Signal Corps.

"During those 52 years I have met some very nice folks - and have attended many NRC conventions. My good friend Bob Gorsuch of Cedar Rapids, IA (who passed away four years ago) accompanied me on many conventions." Thanks for that note, Len; we hope you'll continue renewing for many more years!

DX Time Machine

From the pages of *DX News*:

50 years ago ... from the Oct. 17, 1942 *DXN*: A new column, "Kilocycle Komment", was inaugurated. Information of real value to the DX'er, such as new stations, frequency or power changes, test schedules, etc., was listed in order of frequency starting with 550 and going up to 1600.

25 years ago ... from the November 4, 1967 *DXN*: The NRC was looking for an individual to volunteer to be the club's ANARC representative.

10 years ago ... from the November 1, 1982 *DXN*: Jerry Starr wondered how anyone could believe joke items from an April Fool's edition, such as KGFJ being granted XEGFJ and KDKA applying for WKTQ, but apparently some members and at least one editor did!

2 AM Switch

Jerry Starr
c/o WHOT Radio
4040 Simon Road
Youngstown, OH 44512-1320

Status changes in AM stations, supplied by the FCC and listeners

CALL LETTER CHANGES

Old call:	New call:	Old call:	New call:
1010 KTKE UT Tooele	KTUR	1250 KKFX WA Seattle	KKDZ
1160 WACY MI Fenton	WCXI	1450 KJWH AR Camden	KOSG
1190 KJLA MO Kansas City	KFEZ	1490 WPEX VA Hampton	WOJY

APPLICATIONS/GRANTS FOR NEW STATIONS

None

APPLICATIONS/GRANTS TO EXISTING FACILITIES

None

OTHERNESS

950 WDIG OH Steubenville: station is SILENT
990 WNRV VA Narrows: station is SILENT (we monitored WNRV near Narrows on 10-6-92 so this silence must be a fairly new situation)
1030 WJKZ TN White Bluff: station is SILENT for repairs
1230 WKCE TN Harriman: FCC has DISMISSED license renewal for this station which has been silent since May 1990 which effectively DELETES this facility
1450 KOSG AR Camden: silent as KJWH, station is ON THE AIR

THANKS: Ed Krejny, Don Kaskey, Roy Varneil and MSJ

73 and Good DX, *Jerry & BKF* Jerry Starr & Buffalo E. Toorman

It may not be perfect ...

but the NRC Log, 13th Edition is, simply, the best there is because of your contributions. Why not make the updaters and 14th edition even better? Send all corrections and changes to Wayne Heinen - 4131 S. Andes Way - Aurora, CO 80013-3831. Thank!

Not sure about renewing?

Consider these benefits of a membership in the National Radio Club - 720 pages per year of easy-to-read, comprehensive DX and radio information ... reduced prices for publications ... responsive editors ... and the friendliest bunch of DX'ers in the world! Why not send that renewal check to Ron today!

Facts About NRC's DX Audio Service

The DX Audio Service provides the ONLY monthly broadcast news cassette service to the DX community. Available to anyone anywhere, it is designed to inform the radio listener in a pleasing and informative manner. Many of the announcers on the service are professional broadcasters giving their free time to give the listener the best service available.

DXAS was started to provide broadcast information, both AM and FM, to the visually handicapped DX listener. It has evolved into a service which provides useful material to all types of listeners. Many subscribers listen to the tape to and from their place of work while driving. Features include not only news about DX, but also air checks from radio markets, dialscans, frequency scans, and other items.

A one-year subscription is only \$25. Sample copy and back issues of DXAS: \$3

Cassettes are mailed by First Class mail, on or about the 20th of the month. For information, subscriptions, renewals, sample copies: write to Fred Vobbe, Publisher/Producer - 706 MacKenzie - Lima, OH 45003-1033

WOW

501 country • 94110 country

615 North 200th Street
Omaha, Nebraska 68114
(402) 490-2059

Domestic DX Digest

North: Bill Hale

495 Creekview Drive - Meridian, ID 83642-3241

South: Duncan Shaw

3131 S. McClintock B111 - Los Angeles, CA 90007

East: Dave Braun

11 Mill Bend Acres - Wyoming, DE 19934-9523



DX Catches in the U. S. and Canada, with 24-hr. ELT

MEDIUM WAVE RAMBLINGS

■ Thanks to Jeffrey Less for sending the results of some DX Tests. And to Laura McCusker for relaying her Graveyard Achievements. Other than that ...

UNIDs and UNID HELP

1300 UNID ?? - 10/14 0609-0720 - In and out (mostly out, poor when in) with live-sounding DJ, C&W music, ad for a place ... on Highway 20 ... which offered western-style dance lessons. Thought I heard a mention of FM 98 or 98 FM. Never any acknowledgement of the AM. [Ed-ID]

DX AND EQUIPMENT TESTS

780 WCKB NC Dunn - 10/6 0530-0600 - Weak CIDs throughout test. 1 kHz TT at 0545, no VIDs as WBBM dominates. Conditions only slightly better than their test in early April. (JL-OH)
1300 KWCK AR Searcy - 10/5 0400-0430 - Not heard as WMVO and WERE with Larry King battle it out. (JL-OH)
1320 KXOL OK Clinton - 10/12 0300-0330 - Not heard, way too much CFGM, with WJAS taking up the slack. (JL-OH)

0800 TO 1600 HOURS ELT

1300 KVOR CO Colorado Springs - 10/14 0815 - Clear *Newsradio KVOR Newstime* is 6:15 ID followed by story about the VP debate last night and then news of the state being in financial trouble. Heck, that could be any state! [Ed-ID]

REPORTERS

JL-OH Jeffrey Less Toledo, OH; RF-5000A
Ed-ID Editor, NSSZC/7 Meridian, ID; ICF-2010



1025 Battery Street
San Francisco, CA 94111-1201

Join the Target DX revolution!

Become a better DX'er by targetting. Help yourself by making requests for information ... help others by sharing your experiences through Bruce Conti's Target DX" column. There's strength in numbers and shared information ... and what better way to DX than by DX'ing "smart"? Send your requests and tips to Bruce Conti - 46 Ridgefield Drive - Nashua, NH 03062-1174.

GRAVEYARD DX UPDATE

1240 kHz: WTWA GA Thomson	Laura McCusker	Lewistown, PA	563				
1400 kHz: WDNY NY Dansville	Laura McCusker	Lewistown, PA	132				
1450 kHz: WAOV IN Vincennes	Laura McCusker	Hillsdale, NJ	731				
Graveyard Totals:							
Laura McCusker Kingston, NY	1230	1240	1340	1400	1450	1490	Total
Laura McCusker Ravena, NY	4	11	4	10	1	0	30
Laura McCusker Hillsdale, NY	5	4	4	0	8	7	28
Laura McCusker Lewistown, PA	2	3	1	3	4	4	17
	0	4	1	4	1	3	13
	11	22	10	17	14	14	88

(808) 335-3171
FAX (808) 335-3834

KUAI 720

73
Bill

In the Beginning

John D. Bowker

The complete list of U. S. broadcast stations on the indicated frequency as published by the Federal Radio Commission in 1934. "S" = shared; "SH" = Specified hours; "T" = Transmitter location; "D" = Daytime operation only; "U" = Unlimited time

Frequency (kc)	Call letters	Main studio and transmitter location	Power	Time designation
1500, local...	WMEX	Chelsea, Mass.	{100 w. --- 250 w LS.	} U (C.P. only).
	WNBF	Binghamton, N.Y.	100 w. ---	
	WCNW	Brooklyn, N.Y.	100 w. ---	
	WMBQ	do	100 w. ---	
	WWRL	Woodside, N.Y.	100 w. ---	
	WSYB	Rutland, Vt.	100 w. ---	
	WMPC	Lapeer, Mich.	100 w. ---	
	WKBZ	Ludington, Mich.	100 w. ---	
	WPEN	Philadelphia, Pa.	{100 w. --- 250 w LS.	
	WWSW	Pittsburgh, Pa.	100 w. ---	
		T--Wilkesburg.	{100 w. --- 250 w LS.	
	KOTN	Pine Bluff, Ark.	100 w. ---	
	WRDW	Augusta, Ga.	100 w. ---	
	WKBU	LaGrange, Ga.	100 w. ---	
	WFDV	Rome, Ga.	100 w. ---	
	WHEF	Kosciusko, Miss.	{100 w. --- 250 w LS.	
	WOPI	Bristol, Tenn.	100 w. ---	
	KNOW	Austin, Tex.	100 w. ---	
	KGFI	Corpus Christi, Tex.	{100 w. --- 250 w LS.	
	KGKB	Tyler, Tex.	100 w. ---	
	WKBB	East Dubuque, Ill.	100 w. ---	
	WKBV	Connersville, Ind.	100 w. ---	
	KGFK	Moorhead, Minn.	100 w. ---	
	KWTO	Grant City, Mo.	100 w. ---	
	KGKY	Scottsbluff, Nebr.	100 w. ---	
	KPJM	Prescott, Ariz.	100 w. ---	
	KXO	El Centro, Calif.	100 w. ---	
	KREG	Santa Ana, Calif.	100 w. ---	
	KDB	Santa Barbara, Calif.	100 w. ---	
	KPQ	Wenatchee, Wash.	100 w. ---	

International DX Digest

Foreign DX Catches. Times are UTC; for ELT, subtract 5 hrs.

Some decent auroral conditions were noted this weekend, and I had a chance to do some listening. I hope you heard something, too, to report to IDXD!

We have extensive longwave loggings in this week's column, thanks to Jean and Mark.

PAN-AMERICAN

660 UNID, 10/17 0040-0105 - US pops (Bee Gees), very strong in WFAN null; thought it might be St. Lucia, but Spanish heard weakly as it faded before top of hour. [JR-NY]

670 CUBA R. Reloj, 10/13 0153 - Poor with news, audio was unreadable for the most part, but the beep every minute followed by RR Morse code was clear. R. Reloj not in the Cuban station list nor the WRTH on this frequency. [BC-NH] (This station is being heard with Rebelde and Reloj programs, so I would consider it Arroyo Arenas. In fact tonight, 10/17, I heard Reloj at 0016 then Rebelde baseball game at 0207 - Jim)

700 JAMAICA R. One, 10/8 0330 - Good with reggae and soul music followed by news with ID, "This is JBC News on Radio One". [BC-NH] 10/17 0031 - Good in WLW null with "JBC Radio One" ID, music and dedications. [JR-NY]

700 COLOMBIA CARACOL, Cali, 10/17 0015 - Noted in passing, parallel to 5075 shortwave. [JR-NY]

750 VENEZUELA R. Caracas, 10/16 2348 - Excellent with "Informe RCR" news program, obliterating WSB, ad for Banco Central de Venezuela, program concluded with long list of names (correspondents?) from various cities. Kodak ad. [JR-NY]

760 VENEZUELA R. Doble Q, 10/7 0317 - Good with pop salsa and ballads, plenty of IDs and hype between each song, over WJR and an unID Spanish station (probably RCN). [BC-NH]

760 CUBA CMBD R. Reloj Guanabacoa, 10/10 0336-0341 - Man and woman with news, weather and sports, TC and ID every minute. SIO 333. [JB-NF]

Jim Renfrew

61 Wilcox Street
Rochester, NY 14607-3832

770 COLOMBIA RCN, 10/10 0515 - Heard briefly as "RCN" poked through WABC. [JR-NY]

810 COLOMBIA CARACOL, Bogotá, 10/17 0015 - Noted in passing, parallel to 5075 shortwave. [JR-NY]

810 BAHAMAS ZNS, 10/18 0022 - strong in WGY null (or more accurately WGY weak in ZNS null!), music and dedication from a listener in Nassau. [JR-NY]

830 ST. KITTS & NEVIS, 10/8 0345-0410 - Fair with preaching about miracles over/under WCCO/CFJR, no ID on top of hour, so I assumed it was R. Paradise on new frequency, not WWMO. [BC-NH] (check shortwave parallel KTBN 7510 or 15590 - Jim) 10/11 2301, 2307-2315 - Back-to-back Gospel tunes, as always! No IDs required in Paradise? Deep fades, SIO 342. [JB-NF2] (I have it on good authority that there are no unIDs in Paradise! - Jim)

830 BELIZE R. Belize, 10/16 0049 - Excellent signal with classified ads from listeners, then ID as "Radio Belize and Friends FM", continued with reggae, no sign of R. Paradise at the time. 10/18 0101 - Fair with ID and "7 o'clock news in English", in mess with WADU (which is in Spanish), seemed much stronger than listed night power of 750 watts), a Spanish preacher, and R. Paradise. [JR-NY]

830 VENEZUELA R. Sensación, 10/16 2319 - Sports broadcast in briefly during R. Paradise fade, mentioning various Venezuelan cities. [JR-NY]

840 BRAZIL unID, 10/11 2227-2307 - Football with Portuguesa de São Paulo being the favored team (thus Bandeirantes is most likely) but no IDs heard. Bad fading, faded away as 2247 so quit frequency, but came back at 2302 to find 'women's program. SIO 242. [JB-NF2]



estoy en la ruta
de los 30 años
ECOS DEL TORBES...
la predilecta!

- 860 COLOMBIA (HJN) or HJEP), 10/5 0431 - Colombian accordion music, over/under others with CJBC phased. Subsequently dropped into jumble. 10/7 0415 - popped up over Cuba after R. Clarín had signed off. Call ID started with HJ, rest of call got scrambled by Cuba QRM. [MC-MA]
- 860 DOMINICAN REPUBLIC HILR Santo Domingo, 10/7 0405-0408 - R. Clarín ID excellent over two other Spanish LAs, "desde Santo Domingo" mentioned, medium wave and shortwave frequencies given, several more IDs, then "buenas noches" and s/off with anthem. Should be an easy catch at this time. Phasing eliminated CJBC totally. [MC-MA]
- 860 CUBA CMBM Habana, 10/7 0413 - Spanish talk and music, said it was "en Habana, Cuba". Over/under Colombian with CJBC phased. Audio was wretchedly distorted at times. [MC-MA]
- 860 BRAZIL ZHY592 R. Cidade, Fortaleza, 10/11 2155, 2204-2235 - Initially weak but quite clear, later stronger but mixing with Mundial. Football play-by-play, then post game show that had replays of the "ooooooooo22als" (edited for space - Jim). All sorts of announcements about Fortaleza at 2222-2224, "Radio Cidade" noted out of the blue at 2155 when tape recorder was not on, "Cidade" again at 2224. Generally tough to get IDs during football coverage! SIO 222. [JB-NF2]
- 860 CUBA R. Progreso (unknown site), 10/17 0557 - Unusually strong in usually null-less CJBC, s/off at 0557 (parallel 740 kHz) with Cuban anthem. Nice clean signal (in contrast to CMBM above). Progreso net on past 0630 the next night, by the way. This one appears in 1992 WRTH without a transmitter site. Anyone know where it is? [JR-NY]
- 870 COLOMBIA R. Mar Caribe, 10/7 0255 - Good with news/talk, ID with fanfare at 0300, "Esta es R. Mar Caribe International", followed by salsa music, over WWL. [BC-NH]
- 900 MEXICO XEW, Mexico City, 10/10 0638 - Heard well in CHML null with "Dobleve" ID, and "La Voz de la American Latina desde la Ciudad de México, 900 kHz, con mil vatios de potencia". [JR-NY]

- 940 MEXICO XEQ, Mexico City, 10/17 0502 - Leaked through talk portions of WBBF-950 with UTC-6 timechecks, and ads for Mexico City. [JR-NY]
- 1040 COLOMBIA R. Tropical, 10/17 0245 - excellent, overpowering Quebec station, lots of slogans, mentions of cities. Nothing listed in WRTH, although my own records show a Radio Tropical (Barranquilla) logging from 1976-77. Are they back? Were they ever gone? [JR-NY]
- 1060 CUBA CMDX Baracoa, 10/12 0115-0141 - Spanish ballads, birthday greetings to people in Guantánamo and surrounding area. Deep fades revealed an unID HJ underneath that announced "... desde la capital económica Colombiana" (wherezat?). SIO 342. [JB-NF2]
- 1070 VENEZUELA YVMA Maracaibo, 10/5 0453 - Good "Mundial Zulia" ID through CBA's open carrier. Weak English station under, probably CHOK. Was hoping for French Guiana - looks like a trip to Cape Cod would be in order for this one. [MC-MA] 10/11-12, 2356 and 0038-0040 - At these times over CBA and the unID with IDs, TCs that were 3-4 minutes fast, birthday greetings and LA music. SIO 222. [JB-NF2]
- 1070 unID, 10/11 2329-0048 - In Spanish with a political rally for the Partido Popular, lots of speeches by prospective Senadores who promised "a tabajar mano a mano con el pueblo del barrio" for a four year term. A name that came up a few times (possible presidential candidate?) was Miguel Hernandez Rojo, but no mention of the country or city that I could hear. The election is possibly on the 25th of October! Almost always beneath CBA Moncton, also QRMed by CMKS, a YV and later by RFO-Guyane. Would certainly have been a new one for me! SIO 222. [JB-NF2]
- 1070 FRENCH GUIANA RFO Guyane, 10/12 0047-0051 - Not dear but battling the QRM well, with French drama // France-Inter program on 1375 (St. Pierre). SIO 222. [JB-NF2]



- 1080 CUBA R. Cadena Habana, 10/17 0404 - Poor in WTIC null with what might be called NOS format, occasional whistle sounds, s/off at 0500 with shouted "Venceremos" then anthem. [JR-NY]
- 1090 ST. LUCIA R. Carafbes International, 10/5 0455 - Creole French call-in show good, about even with WBAL before phasing and excellent after nulling out the Baltimore pest. [MC-MA] 10/7 0225 - Excellent with French and US rap/dance music, French DJ, no sign of WBAL, assumed this was R. Carafbes as I didn't bother to stick around for an ID. [BC-NH] 10/11 2310-2327 - Lively dance music and nice ID at 2322, QRMed by a 40 watt CBC LPRT! SIO 333. [JB-NF1]
- 1100 ANTIGUA ZDK St. John's, 10/5 0456 - Adult contemporary music, blasting WWW. [MC-MA]
- 1379.5 UNID, 10/12 0158-0201 - Appalling signal quality on this off frequency Spanish station, may have been a religious program, heard part of an address at 2259 (Casilla 22 or 32). SIO 221. [JB-NF2]
- 1530 BELIZE Voice of America, Punta Gorda, 10/10 0216-0232 - Spanish program with talk, IDs "Voz de los Estados Unidos" many times, report on Guatemalan Nobel Prize winner, news at 0230. SIO 232. [JB-NF]
- 1550 VENEZUELA YVMW Los Teques, 10/5 0518 - R. Metropolitana ID, romantic music, mixing with other Spanish LA station after CBE signed off. [MC-MA]
- 1570 VENEZUELA YVUZ R. Guarapiche, 10/10 0143-0158 - Football game then post game comments, many "RG-15-70" IDs, long list of sponsors at 0152, names of commentators at 0155. SIO 333. [JB-NF]

TRANS-ATLANTIC

- 153 ALGERIA Bechar, 10/9 0609 - Fair-to-good with man in Arabic. [MC-MA]
- 162 FRANCE Allouis, 10/9 0609 - Man in French, fair-to-good. [MC-MA]
- 171 MOROCCO Nador, 10/9 0608 - Fair with man in French, then folk-style mellow vocals. [MC-MA]
- 183 GERMANY Saarlouis, 10/9 0607 - Excellent with man and woman in French. [MC-MA]
- 198 ENGLAND Droitwich et al, 10/9 0610 - BBC excellent with discussion of Nazi war criminals and secret intelligence agencies. Equal to

always loud TUK-194 in strength. [MC-MA]

- 207 MOROCCO Azilal, 10/9 0611 - Arabic talk by a woman, getting past QI beacon QRM. [MC-MA]
- 207 ICELAND Ríkisutvarpid, Reykjavik, 10/11 2129-2135 - Man and woman talking Scandanavian-sounding language, initially over Arabic music from Morocco, but succumbed to superior firepower at 2135. SIO 322. [JB-NF2]
- 216 FRANCE Roumoules/unID, 10/9 0612 - Man and woman in French, over other carrier (SAH about 5 Hz). [MC-MA]
- 234t LUXEMBOURG Junglinster, 10/9 0616 - German or French talk, poor. [MC-MA]
- 243 DENMARK Kalundborg, 10/11 2141-2154 - Man in Danish hosting pop and punk music, deep voiced man spoke at 2147, woman with time tones x2 at 2150, then detailed weather by man. SIO 243. [JB-NF2]
- 252 IRELAND Clarkestown, 10/9 0620 - Patty Smythe's "Sometimes Love Just Ain't Enough", then English talk. Fair through stew of beacon QRM including local SKR. [MC-MA]
- 612 MOROCCO R. Mediterranee Sebba Aïoun, 10/2 2357 - Very nice signal with Arabic music. SIO 444. [JB-NF1]
- 657 SPAIN RNE5 Madrid, 10/2 2350-2356 - Two women and a man chatting, vacuous programming. SIO 333. [JB-NF1]
- 738 SPAIN, 10/9 0559 - Spanish talk by man, poor-to-fair in severe CHCM slop. Unfortunately, CHCM is on the same general bearing as many DX targets, so nulling isn't a possibility. [MC-MA]
- 756t GERMANY, 10/9 0555 - Pop music, apparent German talk, strong carrier, but weak audio. [MC-MA]
- 837 SPAIN and/or CANARY ISLANDS, 10/7 0402 - Man and woman in Spanish over others. [MC-MA]
- 864 FRANCE Paris, 10/9 0545 - Good with man in French. [MC-MA]
- 873 SPAIN R. Zaragoza, 10/11 0001-0005 - SER net news, SER ID at 0005, telephone noise. QRM from AFN. SIO 233. [JB-NF]
- 882 CANARY ISLANDS La Laguna, 10/7 0425 - Spanish talk fair through WCBS slop. [MC-MA]

- 891 ALGERIA Algiers, 10/7 0431 - Excellent with male a capella Arabic vocal. [MC-MA]
- 936t GERMANY Bremen, 10/9 0542 - Possible German talk, then rock music, to fair peaks, but faded. [MC-MA]
- 1017 GERMANY, 10/9 0530 - Rheinsender fair with woman in German. [MC-MA]
- 1035 PORTUGAL Lisbon, 10/7 0445 - Portuguese talk by man, poor in WBZ slop that couldn't be totally nulled. [MC-MA]
- 1044 SPAIN R. San Sebastián, 10/11 0302-0312 - SER net news, lottery numbers, music by Fleetwood Mac. Earlier in the evening Morocco QRM'd this. [JB-NF]
- 1049.1 unID, 10/2 2154-2201 - Strange frequency!! Jazz music, faded out 2156:30-2159:30, pips at 2200, man talking in unID language, possibly Slavic, but could not get much out of it. Initially SIO 333 but deteriorated quickly. [JB-NF1]
- 1053 ENGLAND Droitwich et al, 10/9 0535 - English talk, poor in WEVD/CHUM slop that was tough to null. [MC-MA]
- 1062 DENMARK Kalundborg, 10/2 2148-2153 - Tentative, initially dominant with blues music, male announcer at 2150 but Portugal had already taken over so I couldn't ID the language unequivocally! At first SIO 322. [JB-NF1] 10/9 0528 - Scandanavian (presumably Danish) talk by man and woman, fair in slop. [MC-MA] 10/11 2157-2202 - Detailed weather, woman spoke and brief music until pips and news at 2200. Got confusing as 2 other stations were increasing strength, frequency eventually taken over by Portugal. SIO 433. [JB-NF2]
- 1062 PORTUGAL R. Comercial, São Salvador, 10/2 2148-2153 - Came up quickly over Denmark with Portuguese talk, theater announcements for a number of Portuguese cities, Portuguese music. Stronger than parallel 1035, but 1062 was inaudible on 9/19! SIO 322. [JB-NF1]
- 1089 ENGLAND Brookman's Park et al, 10/9 0518 - Styx oldie "Babe", then male DJ with Cockney accent talked about sports. Good to excellent with WBAL phased. [MC-MA]
- 1098 SPAIN/CANARY ISLANDS/CZECHOSLOVAKIA, 10/9 0516 - Fast Spanish talk over apparent
- Slavic talk, both loud. [MC-MA]
- 1107 SPAIN RNE5 synchros, 10/2 2323 - Four or five poorly synchronized stations with talk in Spanish about France. I noted a number of RNE channels with poor synchronization; this used to be a problem mainly with COPE net. SIO 333. [JB-NF1]
- 1116 ENGLAND (Probably BBC R. Derby but Guernsey is here too), 10/2 2325-2339 - Jazz program under Spain, program theme seemed to be "Birdland", at 2335 jingle that I couldn't decipher then another music program. At 0002 recheck I found this running Radio 2 news. SIO 222. [JB-NF1]
- 1116 unID, 10/6 0440 - Strong open carrier with possible Spanish talk under. [MC-MA]
- 1143 GERMANY AFN synchros, 10/3 0111-0115 - Baseball play-by-play parallel 873. SIO 222. [JB-NF1]
- 1179 SWEDEN Solvesborg, 10/9 0503 - News in Swedish by man, very good with WHAM phased. Bodacious high latitude TA opening tonight. Wonder what Burnell was getting in NF? [MC-MA]
- 1251t ENGLAND ILR Bury St. Edmunds, 10/3 0105 - Snatches of Brit accented man way under Libya. Essentially useless signal. SIO 211. [JB-NF1]
- 1251 LIBYA Tripoli, 10/9 0454 - Arabic talk by woman, in slop. [MC-MA]
- 1269 GERMANY Neumunster, 10/9 0508 - Man in German, fair through CJC slop. [MC-MA]
- 1278 IRELAND RTE Cork & Dublin, 10/3 0015-0020 - "White Punks on Dope" ad for Chuck Berry concert in Dublin, more oldies (but not goodies). SIO 333. [JB-NF2]
- 1296 SPAIN R. Pop. de Valencia, 10/2 2137-2145 - COPE net program of economic news, lost it to unID QRM. SIO 333. [JB-NF1]
- 1305 SPAIN RNE R. 5, Orense and Cd. Real, 10/11 0142-0156 - Unsynched synchros! Program seemed to be about John Lennon with three of his songs being played. One fairly even signal, but weak one faded in and out, sometimes adding a nasty echo. One was SIO 333 other 222. [JB-NF]



TELEFONOS: 31002 AL 05 - SAN CRISTOBAL - EDO. TACHIRA - APARTADO No. 37

- 1314 NORWAY Kvitsoy, 10/9 0505 - Man with news in Norwegian to good peaks despite bruising QRM from the CKEC-1320 slop machine. [MC-MA]
- 1341 NORTHERN IRELAND Lisnagarvey, 10/3 0023-0026 - Radio 2 program with Lou Rawls, promo for James Bond special on the Radio 2 Arts program. SIO 333. [JB-NF1]
- 1377 FRANCE Reseau B Lille, 10/2 2130 - Briefly over Portugal in French with discussion of films. SIO 222. [JB-NF1]
- 1377 PORTUGAL Antena 1 Canidelo, 10/2 2132 - Gaining strength quickly, coming up over Lille with Portuguese talk. SIO 333. [JB-NF1]
- 1413 OMAN BBC relay Masirah Island, 10/3 0054 - "BBC London" ID by man, then woman talk in unID language. Mixing with Spain SIO 322. [JB-NF1]
- 1431 UKRAINE Mikolayiv (ex Nikolayev), 10/3 0057-0102 - Fast Russian music announcement about a concert and woman chatted through top of hour, then man had dramatic reading. SIO 333 over UK station. [JB-NF1]
- 1458 ENGLAND BBC Birmingham R. WM, 10/2 2229-2233 - Contest involving the BBC Birmingham station only, then played a song called "Arranged Marriage". Briefly over all the other BBC locals. SIO 333. I've been after this one for a while. [JB-NF1]
- 1458 ENGLAND unID BBC station, 10/3 0043-0047 - Man and woman in subcontinental language, pips at 0045 then "Yo (or "Ye") BBC London ..." possibly Nepali, and Nepal is UTC+5:45. Must be a relay by a BBC local station; see Connelly's log on 1548 kHz in DX News 59-29, p. 11. SIO 322. [JB-NF2]
- 1494 FRANCE Reseau B synchros?, 10/2 2109-2116 - Portuguese program with items about Angola, weird rooster (including interview in French), and football; "Magazine" program started at 2115. SIO 343. [JB-NF2]
- 1512 BELGIUM Wolvertem, 10/2 2219-2224 - Talk in English about a German author. SIO 343. [JB-NF1]
- 1530 VATICAN, 10/6 0424 - Slav or Albanian talk, usually atop WCKY. [MC-MA]
- 1539 SPAIN R. Vallodolid, 10/2 2211-2217 - Talk in Spanish on European politics, ad for map of Spain. SIO 333, over Germany. [JB-NF1]
- 1548 ENGLAND, 10/7 0508 - C&W song, then British talk, poor in slop. [MC-MA] 10/10 0308-0310 - BBC WS news, "News About Britain" at 0309. SIO 243. [JB-NF2]
- 1557 UNIDS (France/Malta/??), 10/6 0421 - Big open carrier possible Slavic talk under. [MC-MA]
- 1593 GERMANY Langenberg, 10/5 0522 - German talk. 10/9 0433 - Excellent with woman in German. [MC-MA]
- 1602 SPAIN, 10/6 0411 - Bits of Spanish talk, hashed by WUNR slop. [MC-MA]

STATION NEWS

- BELGIUM: R. Vlaanderen (Flanders) International is the new name for the international service of BRTN on 1512 kHz. This transmitter is relaying the shortwave service 0500-2230. [BE in 10/9/92 ARC]
- CEUTA: R. Ceuta 1287, SER, is now heard on this frequency. [BE in 10/9/92 ARC]
- THAILAND: The United Nations Transitional Authority in Cambodia now has programs via VOA 1575, 0030-0100 and 1200-1230 since 7/30/92. [BDXC in 10/92 Medium Wave News]
- UNID: Jean Burnell's 827 station has been heard by reporters in Medium Wave News (UK) with African music, possible Arabic talk. Libya was reported on 827 in 1987, but recently listed on 828. [10/92 Medium Wave News]
- UNITED KINGDOM: Radio Authority announced delay in plans for INR3 the speech-based service due to take over Radio 1's MW channels (1053 & 1089) in 1993. This won't happen before spring 1995. [10/92 Medium Wave News]

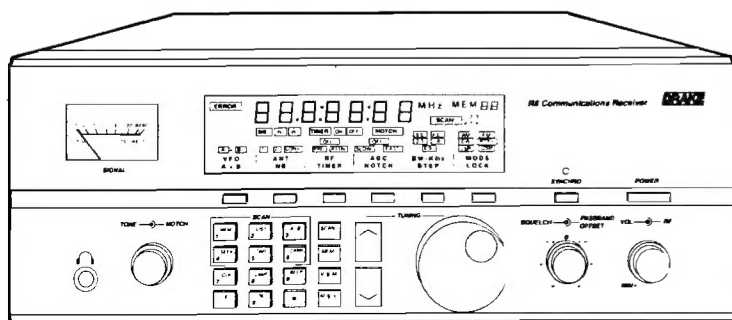
CONTRIBUTORS

- [BC-NH] Bruce Conti, Nashua NH; R70, DX400, MWDX-5, 3 wires.
- [JB-NF] Jean Burnell, St. John's NF; ICOM IC R71A, RTL-1 loop and MWT regenerative tuner.
- [JB-NF1] Jean Burnell, St. John's NF; ICOM IC R71A, 150 m wire at 65 degrees (Cape St. Francis site).
- [JB-NF2] Jean Burnell, St. John's NF; ICOM IC R71A, 200m wire at 165 degrees (Cochrane's Pond site)
- [JR-NY] Jim Renfrew, Rochester NY; HQ-150, Radio West Loop.
- [MC-MA] Mark Connelly WA1ION, Billerica MA; Drake R8, 20m & 37m wires with noise reducing transformers to MWDX-5 Phasing Unit and MWT-3 Regenerative Preselector.

Drake R8: A Second Look ... by Dallas Lankford

About a year ago I ordered an R8 from Drake and wrote about my unsatisfactory experiences with that first R8 in my review "Drake R8: Promising Or Fatally Flawed," in *DX News*, Vol. 59, No. 1, Oct. 7, 1991. Recently I ordered another R8 from Drake, and this time I kept it, so obviously I liked it.

For a MW DXer who wants to use a loop antenna near his receiver, there really is no other choice among the top of the line, current production, solid state receivers because all the others emit objectionable levels of display noise and other RFI throughout the MW band which gets into a nearby loop antenna. Of course, the R8 emits some RFI in the MW band which you can observe by placing a ferrite rod loop antenna directly in front of and a few inches away from the R8 display. But with the loop antenna in any reasonable operating position (i.e., beside the R8, or even on top of the R8), display noise or other RFI from the R8 should be unobservable. These remarks apply only to battery powered (amplified) loop antennas. When I powered one of my loop antennas from an AC power supply, objectionable levels of display noise were observed (apparently coupling to the loop through the power cords).



A line drawing of the R8 is provided above. The R8 case and knobs are black with white and colored lettering. The display is backlit green. The analog S-meter is apparently lit with a green tinted lamp. Some other reviewers have fussed about the R8 ergonomics, but I didn't find any serious problems in that regard. Yes, it would be nice to select the bandwidth you want without going through the other bandwidths, and yes it would be nice to select the mode you want without going through the other modes, and yes some of the buttons are a little closer to other buttons or knobs than I would like, and yes some of the knobs are a little small. But after knob twiddling with an R-390A or 51J-4, the R8 seems fine to me. The textured black paint on the flimsy removable R8 cabinet top reminds me of the 51J-4, another black beauty.

Of course, there is nothing flimsy about a 51J-4, and Drake really should reconsider the flimsy aspect of the removable top part of the R8 case. For a while I thought the power transformer in my new R8 had objectionable mechanical hum until I discovered that the flimsy R8 case top was somehow amplifying the power transformer vibrations and radiating the vibrations like a wolver. Until I repositioned the flimsy top, you could hear 60 Hz hum all over the room and out into the hall when the R8 was turned off. A permanent solution to this problem may require cementing foam rubber of appropriate thickness at various places inside the flimsy removable top or along the sides of the R8 chassis.

You may recall that the first R8 I tried about a year ago had substandard image rejection. According to a statement attributed to Magne in a past issue of *Numero Uno* a number of early production R8's had substandard image rejection due to improperly matched 45 MHz filters (in the first IF). So naturally I checked my new R8 out immediately for images. There was not even a hint of the 100 KHz image of my superlocal KRUS 1490 KHz on 1590 KHz. Subsequently I measured the image rejection of my new R8 at several frequencies in the MW band and at SW frequencies and found the image rejection to be 80 dB or better.

There are some aspects of R8 image rejection which puzzle me. Originally Drake specified R8 image rejection as better than 60 dB from 100 KHz to 1.5 MHz, and better than 80 dB from 1.5 MHz to 30 MHz. However, in the operator's

manual I received with my new R8 the image rejection is specified as better than 80 dB throughout the entire R8 tuning range. Another difference between previous R8 specifications and current R8 specifications is that previously R8 sensitivity below 1.5 MHz was derated (less than the sensitivity above 1.5 MHz), while in my new operator's manual the R8 sensitivity is rated uniformly throughout the entire R8 tuning range with preamp off. (In my new R8 the preamp is still deactivated below 1.8 MHz.) Maybe these two specification changes are related. And maybe both are related to the undocumented MW attenuator which I discussed in my recent note "Drake R8 MW Attenuator." I am especially puzzled that I get different measured image rejection values from one day to another at the exact same frequency using the exact same equipment. It is as if something inside my R8 changes from one day to another. For example, I have gotten measured image rejection values as low as 80 dB and as high as 89.5 dB. The measured image rejection values also seem to depend on signal levels. I tend to get lower image rejection values when the image is at or near the R8 noise floor than when the image is considerably above the noise floor.

To put the above R8 image rejection values into perspective, according to Magne's NRD-525 white paper, Sherwood Engineering measured the (455 KHz) image rejection of an NRD-525 as 82 dB. Consequently, on some days the image rejection of my R8 is slightly less than a typical NRD-525, and on other days it is somewhat more. In any case, better than 80 dB image rejection is excellent.

While I had my equipment out I checked some other specifications of my R8. The 6 dB bandwidths measured 5.7, 4.4, 2.5, 1.8, and 0.3 KHz respectively, while the 80 (yes, 80) dB BW were 11.1, 8.2, 5.4, 4.4, and 1.4 KHz respectively. That is excellent selectivity. The noise floor in the MW band was typically 0.125 microvolts (-125 dBm) for the 6.0 BW, while MW band sensitivity using 6.0 BW for a 10 dB S+N ratio was 1.5 microvolts in AM mode. For CW, USB, or LSB the MW band noise floor was much lower, namely 0.025 microvolts (-139 dBm) for the 6.0 BW, and the MW band sensitivity was better, namely 0.75 microvolts for the 6.0 BW. By comparison the MW band noise floor of an R-390A is typically 0.15 microvolts, and an R-390A MW band sensitivity is typically 0.4 microvolts. To put these sensitivity figures into perspective, it seems to me that I can hear a few weak daytime MW signals slightly (ever so slightly) clearer on my R-390A than on the R8. However, most DXers never hear MW signals as weak as I hear because my MW band noise levels are much lower than most DXers', and in addition I use a noise reducing antenna which further reduces my MW band noise floor. Thus I rate the R8 MW band sensitivity as excellent, almost as good as an R-390A. As a matter of fact, I can hear some weak daytime MW signals better on the R8 than on the R-390A, namely when the R8 noise blanker is effective. The AM mode 3rd order dynamic range of my R8 using the 6.0 BW and 20 KHz tone spacing was typically 87.6 dB in the MW band. Let me point out that Drake's spec of greater than 90 dB dynamic range refers to SSB mode and 2.3 BW. In that case I got a whopping 106 dB dynamic range (primarily because of the much lower CW/SSB noise floor of the R8). These measurements suggest that it may be advantageous to use ECSS techniques on some extremely weak MW band signals, and while I haven't checked it out extensively, listening tests seem to support this suggestion. A ham I spoke with told me he can hear weak CW signals in the ham bands using his R8 that he can't hear at all on his other receivers. Apparently Drake did a bang-up job on the CW/USB/LSB part of the R8 design.

The notch filter on the first R8 I received, in September 1991, didn't work at all. The notch filter in my new R8 works great, at least within the R8 notch frequency range of 500 to 5000 Hz. Sometimes the notch null is difficult to position (a vernier tuning knob for the notch would be helpful in some cases). And it is annoying that the notch will not tune below 500 Hz. In my opinion a tone control on a communications receiver is unnecessary. Maybe I can figure out how to disable the tone control and use the tone control knob to tune the notch below 500 Hz.

At first I thought the noise blanker in my new R8 was intermittent. Fortunately a EE friend of mine had stumbled across the Allegro ULN3845A noise blanker chip data sheets and sent me copies a few weeks ago. After studying the ULN3845A data sheets and the R8 schematic I concluded the apparently intermittent blanking of the R8 noise blanker was normal. Here is what was happening. In the R8 the 3845A follows the 45 MHz filter but precedes the selective 50 KHz IF tuned circuits. The 3845 chip is designed so that audio signals do not trigger the blanker. Since the 3845 "sees" all signals in the 45 MHz filter bandpass (12.5 KHz at 6 dB down, and 25 KHz at 60 dB down), adjacent signals which are somewhat stronger than the desired signal can and do inhibit blanking when the adjacent signals are stronger than the noise pulses. For daytime MW signals you will seldom obtain significant blanking action unless both adjacent channel signals are no stronger than the desired signal. When the R8 noise blanker is not "disabled" by stronger adjacent signals, it is very effective indeed.

The R8 front panel headphone jack is set up for stereo headphones. Yes, it works with mono headphones, but at reduced volume. My favorite headphones are Radio Shack Cat. No. 20-210A Lightweight Monaural Headphones with the 1/8 inch plug cut off and rewired with a standard 1/4 inch plug (the 1/8 to 1/4 inch adapter which comes with them introduces "static"). When using these headphones with the R8 I had to turn the volume up so high that the speaker would almost deafen me unless I remembered to turn down the volume before unplugging the headphones. After I rewired the headphones using a 1/4 inch stereo plug, the situation was better. But I feel that Drake could have done a better job of equalizing headphone and speaker volume. Perhaps part of the problem is the 16 ohm impedance of the 20-210A headphones, but I doubt it. The R8 schematic seems to have omitted the headphone circuit. So I pulled off the flimsy removable top part of the case and peered around. Near the encapsulated PC board mounted stereo headphone jack I spotted two 100 ohm resistors and a 220 ohm resistor. Apparently these are dropping resistors for the headphones, in which case one can adjust the values of those resistors to equalize the headphone volume. Maybe Drake copied the NRD-525 headphone circuit, which has similarly low headphone volume. In his article about NRD-525 modifications (DX News, Vol. 59, No. 5, Nov. 4, 1991), John Tow mentioned a 100 ohm resistor in the NRD-525 as being responsible for the low headphone volume, and said that changing that resistor to 33 ohms much improved the situation. It remains to be seen if a similar mod will equalize R8 headphone volume. I had in mind 47 ohm resistors for the 100 ohm resistors, and a 100 ohm resistor for the 220 ohm resistor in the R8, but would want to breadboard the mod using the R8 rear panel speaker output before permanently modifying the R8 front panel headphone circuit.

My new R8 has the "static" problem due to tuning knob rotation at certain knob positions (once each rotation of the knob) when the R8 is not grounded to power line ground or a good external ground (using the ground nuts on the rear panel). According to remarks attributed to Magne in an E-mail memo of unnamed origin, Drake was supposed to have fixed this problem. Obviously they haven't. Why doesn't Drake just use a 3 wire power cord? When I get around to it, I'm gonna replace the two wire power cord with a three wire power cord.

The outstanding audio quality you get with an R8 is due primarily to two things. The R8 has excellent audio amplification - low distortion and adequate audio output power (2.5 watts into 4 ohms). Many DXers, as well as many radio design engineers, are unaware that a poorly designed AGC circuit can seriously degrade the otherwise excellent audio quality of received signals. If there is any significant amount of audio on the AGC line, the lower frequencies of received audio will be distorted, which is manifested by muffled audio. The NRD-525 in AM mode is a classic example of this defect. An AGC circuit should also have well-defined attack and release times. The NRD-525 in AM mode is again a classic example of a receiver which does not have well-defined attack and release times. For the NRD-525, the ill-defined AM mode attack and release times are manifested by distorted audio on very strong signals (which has been confused by some NRD-525 users as overload distortion), AGC hanging on noise spikes when trying to listen to weak signals (sound familiar, 525 users?), and other problems. To recapitulate, the R8 has outstanding audio quality on received signals because the R8 has excellent audio circuits and an excellent AGC circuit.

As I said above, the R8 AGC circuit is excellent. I haven't measured the R8 AGC circuit parameters yet, but if Drake's published specs are correct, the R8 may have the best AGC of any current production receiver. I don't have to look at the R8 AGC line with a scope to know it doesn't have any significant audio on the AGC line; I can hear that it doesn't just by hearing the excellent audio quality of received signals. And my ears tell me that the R8 AGC attack and release times are probably well-defined because I hear no symptoms of ill-defined attack and release times. If the R8 AGC has any overshoot, it is well hidden because I don't hear any of the obvious symptoms of overshoot, such as pops or clicks on initial syllables of SSB transmissions. The published R8 release times of 300 mS FAST and 2 Sec SLOW are ideal choices. A 300 mS release time is fast enough so that the receiver does not hang on noise spikes or when you tune past strong signals, but slow enough to eliminate most audio from the AGC line. And a 2 Sec release time is ideal for listening to MW graveyarders, strongly fading SW signals, and SSB and CW signals. In addition, the R8 AGC can be turned off, which is desirable in some listening situations. Apparently Drake did everything right with the R8 AGC. The Japanese receiver designers have some lessons to learn from Drake in this regard. For example, the NRD-525 AGC can be fixed by disabling the AM mode AGC path and using the SSB/CW mode AGC path in all modes as I described in my recent article, "NRD-525 AGC Mod: Remove R102 And Jump Pins 364 And Jump Pins 869 Of IC7." And if JRC has done what I think they have done with the NRD-535, the 535 AGC problems are unfixable unless they go back to the 525 AGC circuits. I almost had a heart attack prying off the surface mount resistor and fiddling with tiny jumpers while doing my 525 AGC mod on Russ' 525. Save yourself a lot of trouble and buy an R8.

I came within a gnat's whisker of returning my second R8 to Drake for a refund because of numerous spurs which manifest themselves as quite obvious hets on weak signals (S-1 to S-3) and as not so obvious hets or noise on moderately stronger (S-3 to S-7) signals. The Drake technician I spoke to about these spurs seemed to be unaware of them, or perhaps he was under instructions not to discuss them. So at first I thought my second R8 was defective with regard to spurs. Then I hit upon the idea of contacting other R8 owners to ask them if they had similar spurs in their R8's. Sure enough, they did. There are two types of spurs in R8's: type A you can hear easily by tuning around in CW mode using the 6.0 BW with no antenna connected to the R8, and type B you can hear easily by connecting a signal generator to the R8 with the signal generator output set to about 2 microvolts, and tuning slowly across the signal generator signal in AM mode using the 6.0 BW. To put these spurs into perspective, I asked Russ to check his NRD-525 for spurs. His 525 has about as many type A spurs as an R8, so the 525 and R8 are about equal with regard to type A spurs. His 525 apparently has no type B spurs. The R8 type B spurs seem to be much more numerous than the type A spurs, and seem to occur at any frequency where there is an external signal source. The R8 type B spurs cannot be detected with no antenna or external signal source connected to the R8. This is very curious indeed. It is as if an external signal finds two paths through the R8, and at certain display frequencies the single signal following two paths mixes with itself to produce a spur. The R8 type B spurs sometimes sound like ordinary hets, sometimes like warbling hets, and sometimes like modulated noise (put-putting at maybe 10 to 50 Hz). Most of the R8 type B spurs have another curious feature: a small change in the display frequency usually causes a large change in the spur tone. Normally when you tune across a spur, the tone of the spur (in Hertz) changes by exactly the same amount as the change (in Hertz) of the display frequency. But with these type B spurs, the spur tone may change from 5000 Hz down to zero beat and back up to 5000 Hz, i.e., a total of 10,000 Hz, for a change of only 100 Hz of the display frequency. This curious aspect of R8 type B spurs is important to eliminating them when you encounter them in an actual listening situation: merely retune your R8 a few tens of Hz and the type B spur can be raised in frequency to beyond audibility. The type A spurs can be eliminated with the notch filter, provided the type A spur is not within 500 Hz of the carrier of the desired signal. Unfortunately, the type A spurs drift around from hour to hour, and from day to day, and their frequencies seem to vary wildly from one R8 to another. Russ has suggested we call type A spurs Gypsy spurs because they are constantly on the move and can turn up anywhere. Once again I'm gonna fuss at Drake about the R8 notch filter: if they're gonna give us Gypsy spurs, then they should give us a notch filter that can get rid of all the Gypsy spurs, not just those with tones above 500 Hz.

How serious are the R8 spurs? Well, they obviously didn't stop me from buying an R8 once I surmised everyone else had similar spurs in their R8's and found out that the NRD-525 has about as many type A spurs. There are two kinds of type A spurs in the R8, type A1 which are spaced about 200 KHz apart, and type A2 which are spaced about 400 KHz apart. That gives a grand total of 10 possibly audible type A spurs in the MW band. For most MW listening situations you are going to be listening to signals stronger than S-7, so you won't hear the type A spurs. For comparison, the NRD-525 type A spurs seem to occur mostly at exact multiples of 100 KHz, although there are three "random" type A spurs in the MW band on Russ' 525. It is similarly unlikely that you will hear type A spurs in the MW band on an NRD-525 during actual listening situations. And as I said above, you can usually eliminate the R8 type B spurs by changing the R8 tuning slightly. In summary, the R8 spurs are not serious, and the R8 type A spurs are no more numerous than spurs for other top of the line receivers. It would be nice if Drake would figure out how to get rid of the type B spurs. Until they do, a DXer will have to remember to "jiggle" the R8 tuning to see if some of the "mush" on a weak signal is due to a type B spur.

I did not discuss R8 spurs to deter you from buying an R8. As I said at the beginning of this article, in my opinion there really is no other choice for a MW DXer who wants to use a nearby loop antenna because of the objectionable display noise and other RFI in other receivers. For years I have been looking for a solid state receiver with MW band performance equal to or better than my HQ-180A, R-390A, and modified 51J-4, and I haven't found one yet. The R8 is close, but not quite there. On the other hand, I've concluded that I'll probably be in my grave before a solid state receiver appears which equals the weak signal performance of my venerable hollow state receivers. So it boiled down to the R8 or no solid state receiver for me. I took the R8, and I don't regret it. Try it, you'll like it.

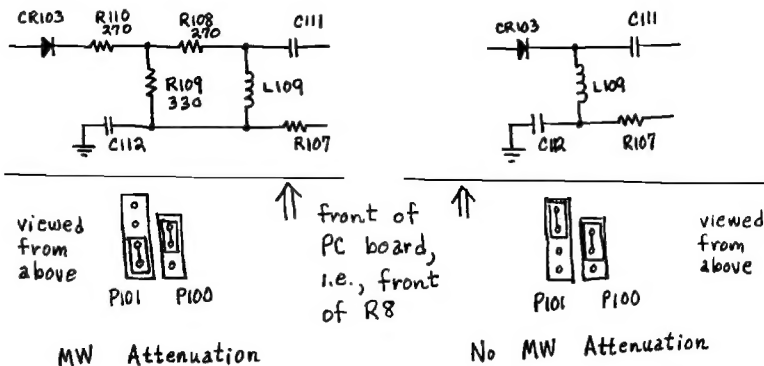
Here are a few final things I intended to mention, but forgot. The squelch on the R8 is about as useful as mud flaps on a bicycle, i.e., useless. The SCAN VFO A TO VFO B feature doesn't work because the R8 doesn't stop scanning unless you fiddle with the squelch control while scanning, and it only stops at the strongest signals anyway, not at all signals above the squelch threshold. I guess Drake put a squelch control on the R8 because Japanese receivers have

a squelch control. That is one feature Drake shouldn't have copied from the Japanese. What Drake should do is permit the user to scan between two frequencies in user selected frequency steps (of any size) and user selected pause times (of any size), WITHOUT SQUELCH. That might actually be a useful feature. I haven't tried any of the memory scanning features. They may be equally disappointing. I surely hope not.

Every R8 owner I have talked with gives the R8 AM synchronous detector a 5 on a scale of 1 to 10. Clearly Drake needs to go back to the drawing board on the AMSD. It is sometimes slow to lock, it sometimes gets "confused" when there are multiple signals on or near the same frequency, it sometimes loses lock during fades (as evidenced by growling or distortion), and it doesn't always improve audio quality in FAST AGC as it should. Fortunately, the R8 has such a good AGC that the AMSD isn't all that necessary. The R8 SLOW AGC is truly outstanding at clearing up MW graveyard jumbles and improving the audio quality of strongly fading SW signals. Like any fast attack, 2 Sec release AGC, the SLOW R8 AGC is occasionally hung briefly on noise spikes. That is, of course, normal for any 2 Sec release AGC. I am not suggesting Drake change the R8 SLOW AGC release time because 2 Sec is right for a slow release.

Drake R8 MW Attenuator ... by Dallas Lankford

Recently I received some information from John Bryant about the undocumented Drake R8 MW attenuator. After studying the information John sent me and the R8 schematic, I developed the sketches below.



The resistor attenuator consisting of R108, R109, and R110 appears to be a 100 ohm source and load 10 dB attenuator. My R8, which arrived about five days ago, was set up at the Drake factory for no MW attenuation. No images or intermodulation distortion products have been observed with my R8 set up for no MW attenuation. I verified that the information above is correct by changing the jumper on P101 from the "NO MW Attenuation" configuration to the "MW Attenuation" configuration, and then back again. Measurements with a signal generator confirmed that in the "MW Attenuation" configuration there is indeed 10 dB attenuation. Plugs P100 and P101 are "headers" (like are used on computer mother boards and on plug-in boards for computers) and the jumpers are header type jumpers, small rectangular pieces of plastic with metal jumpers inside. The jumpers slide off of and onto stiff wire prongs which stick up out of the header bases (which in turn are soldered to the PC board). It is not easy to pull the jumper off with your fingers, and you should not use a screwdriver or other metal tool to pry the jumper off the header. The ideal tool for prying the jumper off the header is a wooden toothpick. Stick the end of the toothpick in one of the little holes near the top of the jumper and push/lever the jumper upward with a finger slightly above the jumper so that the jumper won't go flying off the header and vanish into your room, never to be seen again. The jumper is easily inserted onto a different header position with your fingers.

If your R8 seems slightly insensitive on the MW band, you may want to determine if P101 is set for MW attenuation. Positions of P101 and P100 other than the one shown will also give attenuation, but in those cases the front end bandpass filters may not be terminated properly, which may degrade R8 performance.

Building the Broadcast Band

Thomas H. White – February 22, 1992

(This radio history is continued from last issue and will continue in next week's DXN.)

"News, Concerts, Lectures, and Like Matter"

The government, viewing broadcasting as a public service, may have thought that 485 meters was the more important development. However, the general public saw 485 meters as only a sideshow. The main attraction was the entertainment offered on 360 meters. In contrast to the carefully controlled activities on 485 meters, the situation on 360 meters eventually became badly congested, especially in the larger cities.

In the year ending March, 1923 the number of stations authorized for 360 meters jumped from 65 to 524. Moreover, it was up to the stations themselves to come up with equitable timesharing agreements when more than one station was located in the same area. Although most stations only wanted to broadcast a few hours per day or week, most coveted the prime early evening hours. In the New York City area, Westinghouse thought that WJZ, which began broadcasting in October, 1921, was going to be the only station there on 360 meters. Certainly it didn't see a need for additional ones.

However, by the middle of 1922 nine more stations had been licensed for 360 meters in the region, requiring a complicated and hard-fought timesharing agreement for the New York City area. Other cities had similar problems. San Francisco had been an early broadcast center, with a number of experimental stations operating on various wavelengths, some of which pre-dated KDKA. However, when the new policies required them to be converted to broadcast stations, they congregated on 360 meters, requiring a timesharing agreement.

In a few cases talks came to an impasse, and two stations would start to transmit at the same time, drowning each other out. Officials at the Commerce Department absolutely refused to get involved in these disputes. Eventually the stations, which looked pretty silly, would bow to public pressure and work out some sort of compromise. (No doubt it also was difficult to lure talent with the opportunity to participate in "broadcasts" that were completely drowned out by another station).

Meters and Kilohertz

The initial broadcast allocations referred to the "wavelengths" that stations would use.

This practice dated back to early radio work, when the length of the antenna had a strong influence on the wavelength of the radio signals that were transmitted and received. For technical reasons, beginning in 1923 the Bureau of Navigation switched to specifying a station's "frequency", as measured in "kilocycles per second" (later recast as "kilohertz"). Frequency and wavelength are reciprocals -- to convert one to the other you just divide the value into the speed of light. So, how many kilohertz is 360 meters? Suddenly the simple division is not so simple, because the speed of light was only roughly known in the early 1920s. In some early Department of Commerce references 360 meters was stated to be 834 khz. In other cases the rounded figure of 300,000 kilometers/second was used for the speed of light, so depending on how many decimal places were calculated the answer became 833 or 833.3 or 833.333. Sometimes a more precise estimate, 299,820, was used for the speed of light, which gives a result of 832.8 khz. And if you use the even more precise modern estimate of 299,792.458, the answer becomes 832.757 khz. (485 meters is equivalent to either 618 or 619 khz, depending on the value used for the speed of light.) All this leads to a question -- if you could go back to 1922 with a modern radio with a digital frequency readout, and you wanted the radio tuned to the exact frequency equivalent for a station operating on 360 meters, what you punch in?

The following excerpt from "Microphone Memoirs" gives a clue:

"The way a transmitter was complacently assumed to be kept on its required 360 in those days would be amusing now, or horrifying. A government inspector arrived every four or five months to 'measure' us. In front of the main panel was a large aluminum disk with a center knob, devised by the manufacturer to vary its emitted frequency. The supervisor would gravely and thoughtfully turn that knob back and forth, watching his meter betimes. He would then take a pencil and make a thin mark on the disk's circumference, announcing solemnly: '360'. Another mark: '485 for the weather'. If those pencil strokes escaped being rubbed off by an over-zealous janitor some early morning, we probably retained an accuracy of five or ten meters, above or under par. Or if they remained long enough for the

supervisors's next visit, it was interesting to observe that he invariably rubbed them out himself and put on new ones".

A ten-meter swing each way for a station at 360 meters translates to a frequency drift from about 810 to 855 khz. Obviously WHAS' setup wasn't very precise. But its transmitter was no homebrew concoction – it was an expensive top-of-the-line 500 watt Western Electric, the best that money could buy. Government regulators would struggle for a decade with keeping stations on their assigned frequencies.

Restrictions

By the end of 1921 29 broadcast station authorizations had been issued for 360 and 485 meters. In early 1922 the broadcasting bandwagon rapidly gained momentum. On board, in addition to formally recognized broadcast stations, were government, technical and training school, experimental, plus regular and special amateur stations, each operating on their own wavelengths. Government stations were outside the control of the Bureau of Navigation, so nothing could be done about them. In any event, many of their broadcasts were speeches by elected officials, so it probably wouldn't have been wise to try. The rest were required to conform to the new regulations, and convert to formal broadcast stations, if they wanted to continue broadcasting.

Broadcasts by amateur stations were explicitly prohibited beginning in January, 1922. The Bureau of Navigation regarded most of the broadcasts coming from these stations as frivolous – in most cases the best they could offer were scratchy phonograph records. Since most people already had phonographs there didn't seem to be a pressing public need to fill the airwaves with recorded songs. Amateur broadcasts were said to only be "temporarily" banned, pending new regulations. Seventy years later amateurs are still waiting for the ban to expire. In the meantime, some amateur stations were converted into broadcast stations, helping to swell the broadcasting ranks.

First National Radio Conference

By early 1922 it was clear that broadcasting was an important, and probably permanent, development. It was also beginning to tax the ingenuity of its regulators. In order to receive advice on a number of pressing issues, Commerce Secretary Herbert Hoover convened a "Conference on Radio Telephony", composed of representatives of various government agencies and radio groups. The conference met in Washington from February

27 to March 2, and again from April 17 to 19. The resulting conference report proposed that major portions of the 200 to 600 meter band be set aside for broadcasting. In fact, it suggested separate bands for Government and Public, Private and Toll, and City and State Public broadcasting stations. It favored a total ban on "direct" advertising, and even suggested rules governing broadcasting by private detective agencies. The report also favored legislation strengthening the Commerce Secretary's regulatory authority.

Secretary Hoover, while lauding the efforts of the conference, moved cautiously, partly because Congress failed to pass any new legislation. Only a single new wavelength, 400 meters (750 khz) was added, as a second entertainment wavelength. This was designated the "Class B" wavelength, with 360 meters now referred to as the "Class A" entertainment wavelength. Although 400 meters was envisioned for the use of "better quality" stations, in order to avoid the appearance of censorship only technical requirements had to be met in order to be assigned to the new wavelength. The maximum power permitted was 1000 watts, and "mechanically reproduced" programs were prohibited. As on 360 meters, stations in the same locality had to devise timesharing agreements.

Class B Stations on 400 Meters

In most cases there are about a dozen claimants when you try to identify "the first station" in one category or another. Surprisingly, there seems to be universal agreement that the first Class B station was KSD (now KUSA) the Saint Louis Post Dispatch station in Saint Louis, Missouri, beginning in late September, 1922. Eventually around thirty stations nationwide qualified to use 400 meters.

Although most stations that met the new standards welcomed the chance to move to less congested 400 meters, for some it caused problems. The March, 1923 edition of Radio News carried the following report:

"One big broadcasting station after trying out the Class B license on 400 meters for a short time has returned to the 360 wave. The Department of Commerce has just relicensed WHAS, *The Louisville Courier Journal*, on 360 meters. That paper believes the 360-meter wavelength is better suited for broadcasting, and more popular with the fans".

In fact, the order to move to 400 meters had caused an odd crisis at WHAS. As recorded in "Microphone Memoirs", the following exchange took place between station manager

Harris and his technician:

"Now what?" I asked.

"Can you put us on 400?"

"I can try," he said. "When the supervisor measured us last September he marked 360 and 485, but the 485 got rubbed off. Let's see. The 400 meter change would be –" (out came the slide rule).

"Well, it would be about a third up from where we are to where 485 is if 485 was there, which it isn't. We can't move a third up to nowhere. Maybe I can guess it, within about ten or fifteen meters".

This technical problem, plus fear that their

Date	Total Broadcast Stations	Station Wavelength Assignments					Wavelength Totals		
		360-only	360/485	485-only	400-only	400/485	360	485	400
3/10/22	67	52	13	2	–	–	65	15	–
4/1/22	137	105	26	6	–	–	131	32	–
5/1/22	223	178	38	7	–	–	216	45	–
6/1/22	312	254	50	8	–	–	304	58	–
6/30/22	378	307	63	8	–	–	370	71	–
3/1/23	556	409	115	5	10	17	524	137	27

Dawn of the Skywave

Because the stations on 400 meters had superior equipment, they did a better job of staying on their assigned wavelengths. Surprisingly, in some cases this resulted in more interference between stations. A letter from Murfreesboro, Tennessee, appearing in the February, 1923 issue of Radio News, in part complained:

"Can't you start some kind of a campaign among your thousands of Radio fans and readers to get Washington to do something about this wave-length question? Since all the good stations have gone to 400 meters it is worse than ever, as they are square on 400 meters and all come in together... while before they were scattered below and over 360 meters".

This letter reflects a new problem which was being encountered during nighttime hours. It was the result of the development of better radio receivers, combined with the existence of long ignored "skywave" radio signals. Until the early twenties, most radio receivers used by both the public and commercial companies had been primitive. The majority were crystal sets, limited to picking up strong signals, which in practice usually meant only groundwave signals. The spread, in the early twenties, of receiving sets using vacuum tube amplification meant radios were now thousands of times more sensitive. The wavelengths assigned to broadcast stations had relatively poor

listeners would find it as hard to retune their sets to 400 meters as WHAS did, prompted Harris to get permission to stay on 360 meters.

With the addition of 400 meters, it was now possible for a broadcast station to be licensed to 360-only, 400-only, 485-only, 360/485, or 400/485, where 360 and 400 were Class A and B entertainment wavelengths and 485 continued as the Market and Weather wavelength. Following is a chart reviewing the authorizations on these wavelengths, compiled from official station lists issued for selected dates from March 10, 1922 to March 1, 1923:

groundwave coverage, and the stations used relatively low power, with few rated at more than 500 watts. So, considering only the groundwave signal, stations could be packed fairly close together on the same wavelength without unduly interfering with each other. However, with the introduction of the better receivers, at night during the prime listening hours people were beginning to receive stations from far beyond the range of the groundwave signal. This would have profound effects on how to deal with interference between stations operating on the same wavelength.

At this point it's valuable to return to Marconi's original work. Like many scientific discoveries, his discovery of the groundwave signal both advanced and hindered the art, because it led to a single minded pursuit of good groundwave coverage. Huge spark stations of tremendous power were developed, using giant antennas. By later standards these early stations were absurdly overpowered – in fact they were so powerful that their signals were probably travelling around the world more than once. Because receivers were so insensitive, these transmitting behemoths were needed in order to insure quality service.

Forgotten in the "cult of the groundwave" was the fact that not all of a station's signal is groundwave – some of it does indeed travel "through the air". Originally it was thought that these "skywave" signals merely fled into the cosmos, never to be heard again.

However, soon there was evidence that something strange was happening, especially at night. Somehow, some of the signals were coming back to Earth at distant points.

English physicist Oliver Heaviside did pioneering work on the subject, and found evidence that high above the Earth there is an encircling layer of charged particles. This was originally called the Heaviside Layer, but is now known as the ionosphere, and is the cause of the reflected signals. At first it was mainly viewed as a curiosity, responsible for "freak" reception. Unlike the groundwave signal, which is unaffected by the sun, and has the same strength day and night, the strength of the reflected skywave signal is variable, and usually was too weak to be readily detected by the primitive receivers then in use.

Also, on the wavelengths then in use there normally wasn't any skywave signal during daylight hours, so daytime reception was completely dependent on the groundwave signal. In fact, the skywave signal was seen mainly as a nuisance, since it interacted with the groundwave signal, causing fading.

With the introduction of broadcasting, information about skywave signals suddenly became important. However, a full understanding of what was taking place did not exist in the early twenties. It was obvious the sun was involved, since in most cases skywave signals appeared only at night. Eventually it was determined that the ionosphere is composed of layers, each with distinctive characteristics. What became known as the "E" and "F" layers are responsible for reflecting radio signals back to Earth. (Unlike groundwave signals, the strength of reflected skywave signals are essentially the same across the entire 200 meter to 600 meter band.)

Due to the ionizing effect of the sun, these reflecting layers are more concentrated, thus more effective at reflecting radio signals, in daylight hours than at night. Therefore, in theory skywave signals should be even stronger during the daytime than at night. However, it turned out that an inner "D Layer" also existed. And the D Layer absorbs signals in the wavelengths that happened to be assigned for broadcasting, blocking them before they have a chance to reach the reflective outer layers. But unlike the E and F Layers, the D Layer only exists during daylight hours, which is why skywave signals disappear during the day but return at night. An analogy is that, when talking about the wavelengths assigned to broadcast stations, the E and F Layers act as a mirror reflecting signals back to Earth, while the D Layer is a curtain drawn in front of the mirroring layers

during daylight hours.

(It is popularly believed that old "Amos and Andy" shows are winging their way through the cosmos. Unfortunately for old radio buffs on alpha Centauri, in most cases these signals actually were snuffed out by the absorbing D and reflecting E and F layers a fraction of a second after they left the radio station. In the mid-twenties amateurs began experimenting with frequencies higher than the traditional 1500 khz. As expected, the higher they got the worse the groundwave signal.

Unknown to the amateurs, when you get above a certain frequency the D layer no longer absorbs the signals, but they continue to be reflected back to Earth. Thus, they stumbled upon the shortwave frequencies, which have almost no groundwave capabilities - thus are "worthless" under the old view - but also have globe-spanning skywave coverage, sometimes even better during the day than at night. As you continue to go up in frequency, you eventually reach frequencies which pass through the entire ionosphere, both day and night. Therefore, unlike AM band and shortwave signals, FM and TV signals are indeed spreading throughout the cosmos.)

The greater nighttime coverage on broadcast wavelengths meant it was now possible, at night, for stations to interfere with each other over great distances. In some cases this meant, as in the Murfreesboro letter, hearing more than one program at the same time. But there was an even worse problem. When two stations are close in frequency, their signals interact, creating a piercing "heterodyne" tone, which was estimated to extend ten times as far as the audio interference. (For example, if one station were on 833 khz, and the other on 830 khz, the resulting heterodyne tone would be 3 khz, which is the difference between the two station frequencies.) If stations stay within about .05 kilohertz of each other the tone disappears.

As seen by the earlier WHAS quote on frequency control, with early 1920s technology any such convergence would have only been a fleeting coincidence. (At this time many stations drifted in frequency both in response to what was being transmitted and whenever their antennas swung in the wind. The "flatop" antennas in use at this time had stronger skywave signals, and weaker groundwave, than the modern "vertical" antennas that supplanted the flattops beginning in the 1930s)

Until the development of effective frequency control and directional antennas - both a full decade away - the only tools for

preventing heterodyning on a common wavelength were wide separation of stations, timesharing, and reduced nighttime powers and daytime-only operation.

Second National Radio Conference

By early 1923 it had become clear that a major overhaul of the broadcast service was needed. The most critical problem was that two entertainment wavelengths were not nearly enough. Ideally each station should be given its own wavelength, but that was impractical. Secretary Hoover convened a second conference of government and industry representatives, beginning on March 20.

Once more the conference proposed increasing the number of broadcast frequencies. This time the Commerce Department acted quickly, announcing in early April a sweeping expansion of the broadcast allocation. Over a period of time broadcasting was to be assigned, in 10 khz steps, all the frequencies from 550 to 1350 khz (545 to 222 meters). Stations would still be divided into Class A and B, but this now would refer to two bands of frequencies. Class A stations would be limited to 500 watts, while Class B's would use 500 to 1000 watts of power. Although a few new Class A stations were assigned to the new frequencies beginning in April, the full plan did not start to go into effect until noon on May 15.

Under the plan, none of the multitude of stations operating on 360 meters would be forced to change to a new frequency - they could stay on 360 meters, as "Class C" stations, if they wished. However, no new stations would be assigned to 360 meters, and it was hoped that all the current 360 meter residents would soon voluntarily switch to the new, less congested, Class A and Class B frequencies. Once the stations on 360 meters disappeared, the new band would consist of 50 Class B frequencies running from 550 to 1040 khz, plus 31 Class A frequencies, from 1050 to 1350 khz.

The Class A frequencies consisted of lower power stations - some using a little as 5 watts - which were located relatively close together. The initial plan specified that about two-thirds of the frequencies could be used in all nine of the radio inspection districts, while the rest would be used in at most three assigned districts. Under this setup, nighttime heterodynes were unavoidable on the Class A frequencies. The upper limit of 1350 khz available for Class A stations apparently was set by the existing ship wavelength at 220 meters (1365 khz).

There were more Class B frequencies available than stations qualified to use them,

which was a good thing since a number of the frequencies were not immediately usable. The clump of Class C stations on 833 khz were pretty shaky in the frequency control department, so initially no Class B stations were assigned from 810 to 860 khz, giving the Class C's a little wobbling room. Also, 1000 khz (300 meters) was an international ship frequency, so broadcasters stayed clear of 980 through 1040 until the ships could be reallocated to other frequencies.

The old Class B entertainment wavelength at 400 meters became just another Class B frequency, now known as 750 khz. (Ironically, this frequency was assigned to WHAS, which apparently had finally figured out how to tune its transmitter to 400 meters). The separate Market and Weather wavelength on 485 meters disappeared, absorbed into the Class B frequency band. To the relief of stations like WHAS, broadcasters now sent out their entire program on their one assigned frequency.

The government still maintained strict control over the use of official government reports and forecasts. The handful of stations which had no entertainment offerings, and thus were licensed only for 485 meters, were moved to 360 meters.

The Commerce Department made a special effort to assign the showcase Class B frequencies equitably. The United States was divided into five zones, and each zone was assigned at least ten Class B frequencies. Because of the relatively low powers then in use, Zones 1 and 5, on opposite coasts, were far enough apart to permit simultaneous use without nighttime heterodyning interference. However, all the other zones required exclusive use of their frequencies to avoid heterodyning problems. Following is a review of the fifty Class B frequencies, and their zone assignments, as initially announced by the Bureau of Navigation:

550-3	740-1	930-4
560-5	750-3	940-1
570-4	760-1,5	950-3
580-2	770-2	960-5
590-1,5	780-4	970-2
600-3	790-1	980-4
610-1,5	800-3	990-1
620-2	810-5	1000-3
630-4	820-2	1010-5
640-1,5	830-4	1020-2
650-3	840-1	1030-4
660-1,5	850-3	1040-1
670-2	860-5	
680-4	870-2	
690-1	880-4	
700-3	890-1	
710-5	900-3	
720-2	910-5	
730-4	920-2	

Within each zone, frequencies were assigned for use by specific localities. Commerce was careful to state that frequencies were allocated to jurisdictions, not to individual stations. But they obviously had taken a close look at the 400 meter roster when deciding the initial allocations. One standard was that there be a minimum 50 khz separation between stations in a given locality. This was viewed as the smallest spacing that an average radio could discriminate between when near two stations. There was also a minimum 20 khz spacing within zones. The final step was to assign stations to the new frequencies. Since there were more frequencies assignments than qualified stations, some Class B frequencies were reserved for later use within specific zones. In some of the more congested cities frequencies were shared by two or three

stations.

Following is a review of the initial May 15th Class B allocation, plus the stations that were assigned to them by the end of July, 1923. Seventy years later many of these stations are among the most prominent in the nation. Others, with owners who couldn't afford the expense, later became lesser stations or were deleted altogether. In fact, three stations, WDT (Ship Owners Radio Service), WGM (Atlanta Constitution) and KFDB (Mercantile Trust Company) would be deleted before the end of 1923. Amazingly, given all the changes in the succeeding seven decades, three stations have continuously stayed on the frequencies they received under the May 15, 1923 plan: WMAQ-670 Chicago, KFI-640 Los Angeles, and KSD-550 Saint Louis (now KUSA).

Allocations Announced for 5/15/23		Freq. Assignments as of 7/31/23	
Zone	Location		
1	Springfield/ Wellesley Hills, MA Schenectady/Troy, NY New York, NY/Newark, NJ	890	WBZ Springfield, MA
		790	WGY Schen, NY/WHAZ Troy, NY
		610	WBAY/WEAF New York, NY
		660	WJZ Newark, NJ
		740	WJY/WOR New York & WDT Stapleton, NY
	Philadelphia, PA	590	WOO/WIP Philadelphia, PA
		760	WEI/WDAR Philadelphia, PA
	Washington, DC	690	--
	Reserved	640	WRC/WCAP Washington, DC
	Reserved:	840, 940, 990, 1040	
2	Pittsburgh, PA Chicago, IL Davenport/Des Moines, IA Detroit/Dearborn, MI Cleveland/Toledo, OH Cincinnati, OH Madison, WI/Minneapolis	920	KDKA East Pittsburgh, PA
		670	WMAQ/WJAZ Chicago, IL
		620	WOC Davenport, IA
		580	WWJ/WCX Detroit, MI
		770	WBAV Columbus, OH & WLW/WSAI Cincinnati, OH
		970	WLW/WSAI Cincinnati, OH
		720	WLAG Minneapolis, MN
	Reserved	870	KYW Chicago/WCBD Zion, IL
	Reserved:	820, 1020	
3	Atlanta, GA Louisville, KY Memphis, TN Saint Louis, MO Reserved	700	WSB/WGM Atlanta, GA
		750	WHAS Louisville, KY
		600	WMC Memphis, TN
		550	KSD Saint Louis, MO
		650	WCAE Pittsburgh, PA
	Reserved:	800, 850, 900, 950, 1000	
4	Lincoln, NE Kansas City, MO Jefferson City, MO Dallas/Fort Worth, TX San Antonio, TX Denver, CO Omaha, NE	880	--
		730	WDAF/WHB Kansas City, MO
		680	WOS Jefferson City, MO
		630	WFAA Dallas/WBAP Fort Worth
		780	WOAI San Antonio, TX
		930	--
		570	WOAW Omaha, NE
	Reserved:	830, 980, 1030	

5	Seattle, WA	610	KGW Portland, OR
	Portland, OR	660	KDZE Seattle, WA
	Salt Lake City, UT	960	--
	San Francisco, CA	590	KFDB San Francisco, CA
		710	KPO San Francisco, CA
	Los Angeles, CA	640	KFI Los Angeles, CA
		760	KHJ Los Angeles, CA
	San Diego, CA	560	--
	Reserved:	810, 860, 910, 1010	

The Commerce Department made a tentative step in establishing frequency control standards by "suggesting" that stations stay within 2 khz of their assigned frequencies. This did nothing to reduce heterodyning interference between stations on the same frequency, but at least it would keep stations from drifting into neighboring frequencies. In spite of the suggestion, there would continue to be reports of stations straying far beyond the 2 khz standard. Although stations were now being assigned in neat 10 khz frequency steps, the public generally clung to the older, and less precise, wavelength nomenclature, usually stated to the nearest meter or tenth of a meter for the corresponding frequency. It would be more than a decade before wavelength references completely disappeared in the United States, and many in Europe (where AM stations are now allocated in 9 khz steps) still use the older terminology.

Continued Expansion and the Third National Radio Conference

In the year following the May 15, 1923 reallocation the number of Class C stations on 360 meters declined, so the gap of unused Class B frequencies around 833 khz also shrank. Also, with the reduction, and then elimination, of ship transmissions on 300 meters Class B stations were assigned to the frequencies around 1000 khz. However, problems continued, including a shortage of Class A frequencies. Hoover announced a third industry conference, beginning October 6, 1924.

One of the conference recommendations was to increase the number of Class A frequencies. Under the May 15th allocation amateurs had gotten a little more breathing room, as Special Amateurs were permitted to move below the traditional 1500 khz (200 meters) to 1350 khz (222 meters). However, this expansion would prove short-lived in the face of broadcasting's appetite for additional frequencies.

In July, 1924 the lower limit for amateurs had been shifted back to 1500 khz. Then, following the recommendations of the Third Conference, starting in November, 1924 Class A broadcast stations were assigned to fifteen additional frequencies from 1360 to 1500. Not that very many stations wanted to go there.

Along with low powers, poor groundwave coverage, and interference from the nearby amateurs, these stations were faced with the fact that many radios didn't tune this high.

Following the conference Class B stations were allowed to experiment with powers of up to 5 kilowatts, to be attained in 500 watt steps. (RCA's proposal that stations be allowed to use up to 50 kilowatts was met with shock and a promise to study the matter further).

By April, 1925 the elimination of the Class C stations on 360 meters was essentially complete, and the Class B stations filled in the freed-up frequencies. Thus, from the initial footholds at 360 and 485 meters, broadcasting had expanded in both directions, and now occupied all but the first 50 khz of the 200 to 600 meter band. (Broadcasting's low-end expansion ended at 550 khz due to the need to protect 500 khz - 600 meters - from interference. 500 khz was, and still is, an international distress frequency). The three Class A frequencies adjacent to the Class B band had been converted to Class B use, so the broadcast frequencies now consisted of 53 Class B (550 to 1070) plus 43 Class A (1080 to 1500), for a total of 96.

(Note: This historical account by NRC member, and radio historian, Thomas White will continue in installments in future issues of DXN.)

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Telecom Orders Programs in Creole to be Stopped

By César Objío

SANTO DOMINGO.- The Dominican Telecommunications Direction ordered the closing down of two programs regularly aired in Creole by Radio Enriquillo-1020 at Tamayo, near the Haitian border.

The programs were on the air at 7 a.m. and 5 p.m. for half an hour periods and, as Father Pedro Ricuay, director of the station and a Belgian citizen, said, they were intended for the Haitian living in the sugar cane area located around the Barahona sugar mill. But it happens that the station with 10 kW can be heard easily in Port-au-Prince and the Haitian Government protested to the Dominican Government for the content of the transmissions.

The Telecomunicaciones letter to the director of the station was very clear: "From this moment on we order the definite closing of those programs in Creole."

Then Radio Enriquillo filled the time with instrumental music as a protest for the order. This is not the first time that this station receives an order to close transmissions of programs in Creole. R. Enriquillo is a Catholic Church station but the director is free to the way the programming is prepared.

Other stations in this country belonging to the Catholic Church are: R. ABC-540 Santo Domingo, R. Santa María-590 La Vega, R. Marién-1110 Dajabón and R. El Seibo-1370 El Seibo.

TALE OF TWO NATIONS

Mohawk radio station straddling Canada-U.S. border gets best of both worlds

By Dan Karon
Citizen staff writer

The Ottawa Citizen

ST. REGIS, Que.

Several times a day, employees of CKON radio station on the Akwesasne Indian reserve cross the Canada-U.S. border.

The board room, transmitter and washrooms of the Mohawk-owned station are in the U.S., while most of the administrative offices and the recording studio are in Canada. "The border is an invisible line going right through the middle of the building," said station manager Tim Thompson, whose office is in Canada. The station has both an American and a Canadian postal address as well as two phone numbers — one with a New York State area code and one with a Quebec area code.

But that's just one of the unique features of the station that first went on the air eight years ago. It's housed in a refurbished log cabin on Cornwall Island. The St. Lawrence River reserve near Cornwall is partly in Ontario, partly in Quebec and partly in New York State. The only land route between the two Canadian sectors is through the U.S.

The jurisdictional nightmare has enabled CKON to stay on the air without a Canadian Radio-television and Telecommunications

"(The border) is an invisible line going right through the middle of the building."

— Tim Thompson
CKON Station Manager

Commission licence. The CRTC has asked the station to apply, but station members say they have one already — from the Mohawk nation. The CRTC has not pursued the matter.

But Cornwall and Massena, N.Y. private radio stations are furious. "I think it is very unfair because all broadcasters have to have a CRTC licence before they go on the air," said Keith Clingen, general manager of Cornwall's CJSS-AM and CFLG-FM stations. "We're not an unlicensed pirate radio station," said Thompson. "We operate according to guidelines set out by the Mohawk Nation Council of Chiefs." The council is the non-elected, traditional Mohawk ruling body at Akwesasne. It considers all three sectors of the reserve one sovereign nation.

"But we're not in competition with anyone because our role is to serve our community," said Thompson. CKON is operated by a non-

profit society.

"Our operating guidelines are based on good taste and common sense," said Ron Lafrance, the station's programming director.

"That's really the secret of our success because our guidelines are less stringent than those of the CRTC."

This allows CKON to offer a wide variety of music, he said.

"Because of our flexible programming, we have a large number of listeners outside of our community."

Although no formal surveys have been done, Lafrance estimated that about 25 per cent of the 70,000 people living within 80 kilometres of Akwesasne listen regularly to CKON.

One of the station's major attractions is its casual atmosphere. "We do it deliberately because we want to stay close to the community," said Lafrance. Unlike other stations, CKON does not air any news programs.

"We'll do community information items such as giving times of school openings but that's as far as we'll go," said Lafrance.

"For the safety and welfare of our people here at the station we don't do any news programs," he said. The reserve's 9,500 Mohawks are deeply divided over several issues, a major one being the operation of gambling casinos in the American sector.

sions and their own radios.

Malnar recalled talking to a woman who had just received an Army radio.

"She loaded the batteries, turned it on and started crying," he said. "She said she never realized how important that connection to the world had been to her."

Radio Recovery is a sharp contrast from the high-power radio stations in the Miami market, the nation's 11th-largest.

Instead of air-conditioned sound rooms, the crowded five-person tent, with a single light bulb, serves as both home and broadcast booth. Every several hours the men must slather on a new coating of mosquito repellent.

The signal radiates only 30 miles.

The mission is a departure for the unit, commanded by Lt. Darius White. It saw duty in the Gulf War, broadcasting news and music to

U.S. troops and other programs — still classified — to Iraqi troops.

Today's broadcasts are more mundane: the number of an employment hot line, the location of a food drop, encouragement for people to use showers and toilets at tent cities.

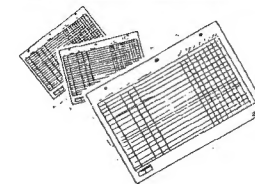
Malnar's delivery is breezy and relaxed, punctuated by pauses and occasional flubbed lines. The station also uses people from the community to read announcements in Spanish and Creole.

The Orlando Sentinel
— via Gayle Yeager

Logsheets - By Frequency

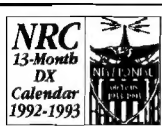
110 sheets, 25 entries possible per sheet with space available to add your own columns. Punched for three-ring binders, full-size 8.5 x 11 inches, on heavy paper.

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Station gives latest news on recovery

ASSOCIATED PRESS

HOMESTEAD — The sun had just come up as Army Sgt. Steve Malnar, juggling a microphone and a sheet of paper, stumbled over the pronunciation of a name.

"Sorry about that," he said, interrupting his announcement about a food distribution center. "It's a little dark in here."

Welcome to Radio Recovery, the newest radio station in the competitive Miami broadcast market. But instead of call-ins or oldies, this tiny

AM operation broadcasts a constant stream of hurricane disaster information from a tent pitched in the parking lot of a shattered restaurant.

"It might be a little boring, but we don't have to worry about advertisers or ratings," said Malnar, a military broadcast journalist from Bata-Via, Ill.

The 400-watt station, run by the Army's 4th Psychological Operations Group, began broadcasting Tuesday to get recovery information out in the hard-hit Homestead-Florida City area.

Plans also include a special newsletter, leaflets, posters, even sound trucks to roam neighborhood streets telling people where to get food, water, help.

Some 12,000 small, cheap radios, originally purchased for use in the Gulf War, are being distributed to civilians who lost electricity, televi-